THE EMBODIMENTS OF THE INVENTION FOR WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. Apparatus in the casing of a wellbore for injecting liquid to a lower formation with a PC Pump having a rotor, comprising:

a packer set in the casing above the formation and adapted for pumping liquids, from uphole of the packer, downhole through the PC Pump and into the lower formation; and

a bearing assembly positioned downhole of the PC Pump and spaced from the stator, a shaft connected to the rotor and bearings for rotatably supporting and axially restraining the rotor to the bearing assembly so that as the PC Pump rotor rotated to pump liquid through the stator from above the packer to the formation below the packer, uphole loads acting on the rotor are restrained through the bearing assembly.

2. The apparatus of claim 1 wherein the bearing assembly further comprises a releasable coupling between the shaft and the rotor.

3. The apparatus of claim 1 wherein the releasable coupling comprises:

a first connection depending from the rotor;

a second connection extending from the shaft; and

cooperative means between the first and second connections.

4. The apparatus of claim 3 wherein a pony shaft is connected between the first and second connection.

5. The apparatus of claim 3 wherein

the second connection further comprises a housing having a bore; and

the first connection further comprises a plunger so that when the plunger engages the bore of the housing the first and second connection become coupled.

6. The apparatus of claim 5 further wherein the plunger and the housing form a latch operable between two positions:

a first position wherein the first and second connections are coupled; and

a second position wherein the first and second connections are released.

7. The apparatus of claim 6 wherein the latch further comprises:

one or more dogs formed in the bore of the housing, and

a track formed on the plunger and operable with a first axial movement to capture the dog for coupling the first and second connections and operable with a second axial movement to release the one or more dogs for uncoupling the first and second connections.

8. The apparatus of claim 6 wherein the latch further comprises:

one or more dogs on the plunger; and

a track formed in the bore of the housing and operable with a first axial movement to capture the dog for connecting the first and second connections and operable with a second axial movement to release the one or more dogs for uncoupling connecting the first and second connections.

9. The apparatus of claim 6 further comprising a pup-joint spacing the stator from the bearing assembly and having perforations formed therein for directing pumped fluids into the wellbore for injection into the lower formation.

10. The apparatus of claim 9 further comprising a one-way valve located below the pup-joint perforations and above the lower formation.

11. The apparatus of claim 1 wherein the bearings of the bearing assembly is sealed from the pumped liquids.

12. The apparatus of claim 11 wherein the shaft extends through a bore in the housing and the bearings rotatably support the shaft from the housing, the bearing assembly further comprising:

an uphole seal for sealing between the rotatable shaft and the housing; and

a downhole seal for sealing the bore of the housing so as to protectively sandwich the bearings therebetween.

13. The apparatus of claim 11 wherein:

the uphole seal further comprises a first seal face sealed and rotatable with the shaft and biased to rotatably seal against a second seal face supported by and sealed to the housing.

14. The apparatus of claim 11 wherein the downhole seal further comprises:

a piston in the bore of the housing and having annular seals therebetween; and

a spring biasing the piston downhole so that the piston is sealably slidable in the bore for equalizing pressure between the formation and the bore.

15. The apparatus of claim 1 further comprising a pup-joint spacing the stator from the bearing assembly and having perforations formed therein for directing pumped fluids into the wellbore for injection into the lower formation.

16. The apparatus of claim 15 further comprising a one-way valve located below the pup-joint perforations and above the lower formation.

17. A method for injecting liquid from a wellbore into a lower formation with a PC Pump having a rotor and a stator, comprising:

anchoring the packer in the wellbore above the lower formation;

rotating the rotor for pumping liquids from uphole of the packer downhole through the PC Pump and into the lower formation; and

supporting the rotor with a bearing assembly positioned downhole of the PC Pump and spaced from the stator.